

IN THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1--7. (canceled)

8. (currently amended) An occupant classification system for use with a [[A]] seat mounting arrangement in a vehicle, the arrangement comprising: for coupling a seat base[[:]] to a vehicle floor, the system comprising:
a sensor element having a body having a center portion adapted for securing to a floor of the vehicle, a first attachment portion connected to said center portion by a first flexible beam, and a second attachment portion connected to said center portion by a second flexible beam, said first and second attachment portions being rigidly secured directly to said seat base;
first and second strain sensing elements attached to said first flexible beam and third and fourth strain sensing elements attached to said second flexible beam;
whereby said first, second, third and fourth strain sensing elements cooperate to produce an electrical signal indicative of a force applied to said seat base, thereby deflecting said first and second flexible beams in substantially S-shaped bends.

9. (currently amended) The ~~sense element~~ occupant classification system of claim 8 wherein said body is formed of a metal having high yield strength and low modulus of elasticity, such as titanium.
10. (currently amended) The ~~sense element~~ occupant classification system of claim 8 wherein said center portion, first attachment portion, and said second attachment portion are coplanar.
11. (currently amended) The ~~sense element~~ occupant classification system of claim 8 wherein said first, second, third, and fourth strain sensing elements are formed of ruthenium dioxide.
12. (currently amended) The ~~sense element~~ occupant classification system of claim 8 wherein said first, second, third, and fourth strain sensing elements are arranged in a Wheatstone bridge and said electrical signal is derived from an output of said Wheatstone bridge.
13. (currently amended) The ~~sense element~~ occupant classification system of claim 12 further comprising wherein said electrical signal is an input to a signal conditioning circuit having an input coupled to the Wheatstone bridge output for receipt of the electrical signal.

14. (currently amended) The ~~sense element~~ occupant classification system of claim 13 wherein said signal conditioning circuit has an analog electrical output indicative of said input.
15. (new) The occupant classification system of claim 8 wherein the first strain sensing element is attached to the first flexible beam adjacent the center portion, and the second strain sensing element is attached to the first flexible member between the first strain sensing element and the first attachment portion such that the first and second strain sensing elements are positioned on opposite sides of a central inflection point of the first flexible beam whenever the first flexible beam assumes an S-shaped bend under load.
16. (new) The occupant classification system of claim 15 wherein the first and second strain sensing elements are attached to a same surface of the first flexible beam whereby whenever the first flexible beam assumes an S-shaped bend under load, one of the first and second strain sensing elements is in tension and the other of the first and second strain sensing elements is in compression.
17. (new) The occupant classification system of claim 8 wherein at least one of the first and second attachment portions is secured directly to the seat base by a fastener having a flanged head for evenly distributing a fastener clamping load around the at least one first and second attachment portion.

18. (new) The occupant classification system of claim 17 wherein the fastener comprises a threaded bolt and nut combination, the bolt carrying the flanged head.

19. (new) The occupant classification system of claim 18 further comprising a washer interposed between the at least one first and second attachment portion and the seat base for managing clamping load.

20. (new) The occupant classification system of claim 8 wherein the first and third strain sensing elements are respectively attached to the first and second flexible beams adjacent the center portion, and the second and fourth strain sensing elements are respectively attached to the first and second flexible beams such that the second strain sensing element lies between the first strain sensing element and the first attachment portion and the fourth strain sensing element lies between the third strain sensing element and the second attachment portion, the first and second strain sensing elements being positioned on opposite sides of a central inflection point of the first flexible beam whenever the first flexible beam assumes an S-shaped bend under load, and the third and fourth strain sensing elements being positioned on opposite sides of a central inflection point of the second flexible beam whenever the second flexible beam assumes an S-shaped bend under load.

21. (new) The occupant classification system of claim 20 wherein the first and second strain sensing elements are attached to a same surface of the first flexible beam and the third and fourth strain sensing elements are attached to a same surface of the second flexible beam.

22. (new) The occupant classification system of claim 21 wherein the first, second, third and fourth strain sensing elements are arranged as a Wheatstone bridge which is unbalanced whenever both the first and second attachment portions are deflected in a same direction.

23. (new) The occupant classification system of claim 21 wherein the first, second, third and fourth strain sensing elements are arranged as a Wheatstone bridge which remains substantially balanced whenever only one of the first and second attachment portions is deflected.

24. (new) The occupant classification system of claim 21 wherein the first, second, third and fourth strain sensing elements are arranged as a Wheatstone bridge which remains substantially balanced whenever the first and second attachment portions are deflected in opposite directions.